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The Sex Offender Need Assessment Rating (SONAR): A Method for Measuring Change in Risk Levels

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By

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Abstract

Presently, there are no established scales that could be used to evaluate change in risk among sexual offenders. The Sex Offender Need Assessment Rating (SONAR) was developed to fill this gap. The SONAR includes five relatively stable factors (intimacy deficits, negative social influences, attitudes tolerant of sex offending, sexual self-regulation, general self-regulation) and four acute factors (substance abuse, negative mood, anger, victim access). The psychometric properties of the scale were examined using data previously collected by Hanson and Harris (1998, in press). Overall, the scale showed adequate internal consistency and moderate ability to differentiate between recidivists and non-recidivists ($r = .43$; ROC area of .74). SONAR continued to distinguish between the groups after controlling for well-established risk indicators, such as age, IQ, and scores on the Static-99 (Hanson & Thornton, 1999) and the Violence Risk Appraisal Guide (VRAG; Quinsey et al. 1998).

The Sex Offender Need Assessment Rating (SONAR): A method for measuring change in risk levels

The evaluation of recidivism risk is important for the management of sexual offenders and recent years have seen considerable advances in risk assessment. A number of offender characteristics, such as sexual deviance and criminal lifestyle, have been reliably linked with recidivism risk (Hanson & Bussière, 1998) and several specialised risk scales have been developed (Quinsey, Harris, Rice & Cormier, 1998; Epperson, Kaul & Hesselton, 1998; Hanson, 1997a; Hanson & Thornton, 1999, in press). Although the existing scales can be useful for evaluating long-term risk potential, they are poor measures of change. Most of the items on the extant scales are static, historical items. Consequently, these scales are of little help for many risk decisions, such as whether an offender has benefited from treatment, or whether he should be suspended from conditional release.

Evaluating change requires variables capable of changing, i.e., dynamic variables (Bonta, 1996). Although age is sometimes considered a dynamic variable, the most useful dynamic variables are those that are amenable to deliberate intervention. Dynamic variables can be further subdivided into stable risk factors, which would be expected to persist for months or years (e.g., personality disorders, alcoholism), and acute risk factors, which may last for days or only minutes (e.g., intoxication, acute anger).

The relatively low recidivism rates of sexual offenders makes it difficult to detect dynamic risk factors. Over a 4-5 year period, approximately 10-15% of sexual offenders will be detected committing a new sex offence (Hanson & Bussière, 1998). Only static or highly stable factors can be expected to predict recidivism many years later. In order to focus on potentially dynamic risk factors, Hanson and Harris (1998, in press) examined the antecedents of recidivism in a group of sexual offenders already known to have reoffended while on community supervision. Comparisons with non-recidivists identified a number of dynamic risk factors, such as non-cooperation with supervision, victim access, anger, sexual pre-occupations, and acute changes in mood.

The current study examines how well the dynamic risk factors identified in the Hanson and Harris (1998) study can be organised into a structured risk assessment. The construction of this new scale, the Sex Offender Need Assessment Rating (SONAR), was guided by theory as well as by the findings of the Hanson and Harris (1998) study. This study cannot claim to establish the predictive validity of the measure because the same data base was used to develop items and to test the scale's validity. Instead, the study had the more modest aim of suggesting a plausible approach to dynamic risk assessment, an approach that is sufficiently explicit to be used and evaluated in other samples.

The development of the SONAR was guided by social cognitive theory (e.g., Bandura, 1977; Fiske & Taylor, 1991) as has been applied to general criminal behaviour (e.g., Andrews & Bonta, 1998) and sexual offending (Johnson & Ward, 1996; Laws, 1989). In this model, recidivistic sexual offenders would be expected to hold deviant schema, or habitual patterns of thought and action, that facilitate their offences. The likelihood that an offender will invoke such schema would increase if the schema were well rehearsed, were triggered by common circumstances, were considered socially acceptable, and were consistent with the offender's personality and values. Each offender's crime cycle would be somewhat unique. Nevertheless, certain characteristics would be expected to provide fertile ground for the development and maintenance of deviant sexual schema.

The SONAR items are divided into five stable factors (intimacy deficits, negative social influences, attitudes tolerant of sexual offending, sexual self-regulation, general self-regulation) and four acute factors (substance abuse, negative mood, anger, victim access). The scoring criteria are given in Appendix I. The rationale for the inclusion of each of these constructs is described below.

Intimacy deficits

The importance of intimacy deficits for sexual offenders has been supported by several lines of research (Marshall, 1993; Ward, Hudson & McCormack, 1997). In contrast to the relationships of trust associated with normal sexuality, social interactions connected with sexual offending are, by definition, problematic. Sexual offenders often report little satisfaction from their intimate relationships (Seidman, Marshall, Hudson, & Robertson, 1994), lack empathy for women (Hanson, 1997b), and pursue sex in uncommitted relationships (Malamuth, 1998). Sex offenders who have never been married are at increased risk for recidivism (Hanson & Bussière, 1998) and offenders with severe courtship disorders (see Freund, Seto, & Kuban, 1997) appear to be at particularly high risk for recidivism. Frisbie (1969), for example, reported that "grave difficulties in establishing meaningful relationships with adult females"(p. 163) was one of the most important predictors of sexual offense recidivism. As well, Hanson and Bussière (1998) found that the closer the pre-existing relationship with the victim, the lower the recidivism rate (incest < acquaintances < strangers).

Social influences

Among general criminal populations, the number of criminal companions is one of the strongest predictors of recidivism (Gendreau, Little & Goggin, 1996). Research has yet to examine the link between negative peer associates and sexual recidivism. Such a link is plausible, however, given that sex offenders are likely to have friends and relatives who are also sexual offenders (Hanson & Scott, 1996). In the case of pro-pedophilia organizations (e.g., Thorstad, 1991), the social support for sex offending can be explicit. In most cases, however, the social influences are likely to have an indirect influence on sex offending through

promoting generally antisocial attitudes, poor behavioural controls, substance abuse, and dysfunctional coping strategies. Peers who support the offenders' denial or facilitate victim access would also be considered to be poor social influences.

Attitudes

Attitudes or values tolerant of sexual assault are also plausibly related to sex offence recidivism. Among community samples, there is consistent evidence that men who admit to sex offending also endorse "rape myths" or attitudes that condone such behaviour (Dean & Malamuth, 1997; Malamuth, Sockloskie, Koss & Tanaka, 1991). Research with convicted sexual offender samples has been less consistent, but there is some evidence that deviant sexual attitudes are common among both child molesters and rapists (Bumby, 1996; Hanson, Gizzarelli & Scott, 1994). Averaged across four studies (n = 439), Hanson and Bussière's (1998) meta-analysis found a small positive correlation between deviant sexual attitudes and sexual offence recidivism, a finding that has been replicated in subsequent research (Bakker, Hudson, Wales & Riley, 1999).

Sexual self-regulation

One of the most distinctive risk factors for sexual offenders is a problem with sexual self-regulation. Sexual offenders perceive themselves to have strong sexual urges, and feel entitled to act out their sexual impulses (Hanson et al., 1994). Sex is overvalued in the pursuit of happiness. Sexual offenders believe that sexual activity (normal or otherwise) increases their social status (Kanin, 1967) and mitigates life stress (Cortoni, 1998).

According to relapse prevention theory, a common trigger for sexual offending is negative mood or stress (Pithers, Beal, Armstong & Petty, 1989). The overall level of subjective distress does not appear to be important in predicting recidivism (Hanson & Bussière, 1998). What does seem important, however, are the mechanisms used by sex offenders for regulating their emotional and sexual feelings. Research has found, for example, that sexual offenders are most likely to engage in deviant sexual fantasies following stressful events (McKibben, Proulx & Lusignan, 1994; Proulx, McKibben & Lusignan, 1996). Sexual offenders would be expected to be at high risk to reoffend if a) many circumstances, including negative affect, arouse sexual imagery; and b) they feel deprived or frustrated if they are unable to quickly satisfy their sexual urges.

General self-regulation

In addition to problems with emotional/sexual self-regulation, offenders may also have problems with general self-regulation. Impulsive behaviour is so common among offenders that some theorists have proposed that "low self-control" is the essential element of all criminal behaviour (Gottfredson & Hirshi, 1990). Offenders tend to smoke, drink excessively, use drugs, drive fast, quit school, and engage in multiple short-term sexual relationships

beginning at an early age. Scales used to predict criminal recidivism, such as the Hare Psychopathy Checklist - Revised (PCL-R, Hare et al., 1990; Hare, 1991) or Level of Service Inventory – Revised (LSI-R, Andrews & Bonta, 1995), typically contain numerous items related to impulsivity and lifestyle instability. In general, factors related to general criminality also predict sexual offence recidivism among sex offender samples (Hanson & Bussière, 1998).

Although sexual offenders may have fewer problems with lifestyle instability than other offender groups, poor behavioural controls can, nevertheless, directly contribute to sexual offending. Some offenders impulsively commit sex offences given the opportunity (e.g., an encounter with a vulnerable female victim during the course of a burglary). Poor self-control can also have an indirect influence on recidivism among those with an established pattern of sexual deviance. Self-management skills are required in order to conform to the demands of treatment and community supervision, and to sustain long-term life changes.

Acute risk factors

In addition to the stable risk factors described above, the SONAR also considers a number of acute risk factors. Acute risk factors are not necessarily related to long-term recidivism potential; instead, they are useful in identifying when sex offenders are most likely to reoffend. The four acute risk factors included in the SONAR were the following: a) substance abuse, b) negative mood (e.g., depression, anxiety), c) anger/hostility, and d) opportunities for victim access. These four items were selected because they were significantly related to recidivism in the Hanson and Harris (1998) data set and were not already addressed by the stable risk factors included in SONAR.

The SONAR subscales were created from the individual questions in the Hanson and Harris (1998, in press) data set that most closely matched the constructs of interest. For some constructs, the connection between the indicators and the construct had high face validity (e.g., negative peer influences); for other constructs, the connection was less obvious (e.g., sexual self-regulation). When multiple indicators were available, an attempt was made to retain only the minimum number of items necessary to reliably sample the domain. The inclusion of individual items was guided by face validity and observed differences between the recidivistic and non-recidivistic offenders.

Method

The data used to test the SONAR was the same as that reported by Hanson and Harris (1998, in press). Since the data collection procedures have already been described elsewhere, only a brief overview of the research method will be provided. Interested readers are referred to the original reports (Hanson & Harris, 1998, in press).

Subject Selection

The study considered non-incestuous, hands-on sexual offenders who had received community supervision (parole, probation) from the Canadian provincial or federal correctional systems. The offenders were divided into 208 who committed a new sexual offence while on community supervision and 201 who had not recidivated with a sexual offence or serious violent offence. The offenders were further divided into approximately equal numbers of boy-victim child molesters (n = 122) girl-victim child molesters (n = 150) and rapists (n = 137). For each offender type, the recidivists and non-recidivists were matched on offence history, index victims, and jurisdiction. On average, the non-recidivists had completed 24 months in the community, whereas most of the recidivists had re-offended within 15 months.

File Review Variables

A standardised coding manual was used to record background information for each case. This information was based on complete file reviews and national criminal history records obtained from the Royal Canadian Mounted Police. The background information included basic identifying information, demographics, psychological assessments (e.g., intelligence, mental disorders), detailed sexual offence histories, and a number of other variables related to recidivism risk.

Violence Risk Appraisal Guide (VRAG). (Quinsey et al., 1998).

Originally developed to predict violent recidivism among offenders referred to a maximum security psychiatric institution (Harris, Rice & Quinsey, 1993), the VRAG has attracted considerable interest as an actuarial predictor of violence (Borum, 1996). Its 12 tems include Hare's Psychopathy Checklist - Revised (Hare, 1991), other personality disorders, early school maladjustment, age, marital status, criminal history, schizophrenia, and victim injury. An application of the VRAG to a replication sample of 159 sexual offenders (Rice & Harris, 1997) found that it correlated .47 with violent recidivism (sexual and nonsexual violence). Due to incomplete files, VRAG scores were available for 146 recidivist and 121 non-recidivists.

Static-99 (Hanson & Thornton, 1999, in press).

Static-99 was designed to predict sexual recidivism using a limited number of easily scored items. The Static-99 items were drawn from Hanson's (1997a) Rapid Risk Assessment for Sexual Offense Recidivism (RRASOR; prior sex offences, male victims, unrelated victims, age less than 25) and Thornton's Structured Anchored Clinical Judgement (SAC-J; index nonsexual violence, prior nonsexual violence, 4+ sentencing dates, single, any stranger victims, any non-contact sex offences - see Grubin, 1998). Across a combined sample of

1,208 sex offenders from four different settings, Static-99 correlated .33 with sex offence recidivism and .32 with any violent recidivism (Hanson & Thornton, 1999).

Interview Variables

Most of the information used to create SONAR was drawn from one-hour, structured interviews with the supervision officers. Officers indicated whether particular problems had ever been a concern during the whole course of supervision, and, if so, whether the problem was worse at T1 or T2. For the recidivists, T2 was the month preceding the recidivism event and T1 was a within-subject control period six months earlier. For the non-recidivists, T2 was simply the preceding month of supervision. For each time period (ever, T1, T2) officers rated each risk factor as '0 – no, never a problem', '1 – very slight or possible problem or concern', or '2 – yes, some problem'.

The interviews contained 128 individual items organised into 22 content areas. These topic areas included substance abuse, mood, psychiatric symptoms, attitudes tolerant of sexual assault, lifestyle instability, sexual preoccupations, and cooperation with supervision. The complete list of factors is available in Hanson and Harris (1998). The subset of items used in the construction of the SONAR are listed in Appendix I.

Procedure

The data were collected by four field researchers working under the supervision of the project manager (Andrew Harris). Each field researcher received a week of group training, on-site supervision during their first week in the field, and an additional 1-2 weeks of on-site supervision during the course of data collection.

Interviews with the supervision officers were conducted in the officers' usual place of work during normal office hours.

The field researchers coded the file material before or after the interview depending on the availability of the officer. The file coding was based on all available information and typically took 3-5 hours. The researcher who coded the files also conducted the corresponding interview.

Reliability

Approximately 10% of the cases (43) were coded separately by two raters in order to estimate reliability. The inter-rater reliability was consistently high for all coders in the study. The average percent agreement was 95% for the static file coding, 97% for interview ratings, 94% for supervision case notes.

Results

As can be seen in Table 1, the sampling procedure successfully matched the recidivists and non-recidivists on a number of static variables, including marital status, race, index victim type and the number of previous sexual offences. Nevertheless, differences on static variables remained. The recidivists were more likely than the non-recidivists to have diverse types of victims, paraphilias, prior non-sexual offences, lower IQ, and to meet PCL-R definitions of psychopathy (20% versus 8%). The recidivists were also higher risk than the non-recidivists on established risk scales: Violence Risk Appraisal Guide (VRAG) ($r = .35$, $p < .001$); and Static-99 ($r = .15$, $p < .01$). The groups did not differ on the RRASOR since the cases were explicitly matched on the main variables in this scale.

The items of the SONAR were moderately intercorrelated (alpha = .67). In the total sample, SONAR scores ranged from -3 to 14, with a mean of 6.7 (SD = 3.1). The recidivists had higher scores than the non-recidivists on the total score and each of the subscales (see Table 2). The average SONAR score for the recidivists was 8.0 (SD = 2.4, range 1 to 14) compared to an average score of 5.4 for the non-recidivists (SD = 3.1, range -3 to 12). The ability of the scale to distinguish between the groups was moderately high ($r = .43$; ROC area of .74).

As can be seen in Table 3, SONAR scores correlated with age ($r = -.15$, $p < .01$), intelligence ($r = -.15$, $p < .01$), and Static-99 scores ($r = .14$, $p < .01$). It also showed a substantial correlation with the VRAG ($r = .39$, $p < .001$), suggesting that SONAR items are at least partially addressing an enduring propensity for violent behaviour. In support of this interpretation, the SONAR items that correlated most strongly with the VRAG were the stable items, particularly general self-regulation ($r = .40$, $p < .001$).

The next set of analyses considered the extent to which SONAR scores continued to differentiate the groups after controlling for pre-existing risk factors. These analyses were conducted using logistic regression (see Neter, Kutner, Nachtsheim & Wasserman, 1996) since the outcome variable was dichotomous (recidivist, non-recidivists) and the unstandardised logistic regression coefficients remain constant across various distributions of the independent (i.e., risk scores) or dependent (i.e., recidivism base rates) variables.

When entered alone in logistic regression, SONAR has a regression coefficient of .35 (SD = .043, Wald = 64.31, $p < .001$). The exponent of the coefficient, $e^{(B)}$, is an odds ratio. In this case, B equals .35, e is the constant 2.718, which yields an odds ratio of $(2.718)^{(.35)} = 1.42$. Given low base rates, the odds ratio can be interpreted as a rate ratio (the recidivism rate of the more deviant group divided by the recidivism rate of the less deviant group). For each point increase in SONAR scores, the recidivism rate would be expected to increase by 42%. If, for example, the recidivism rate of offenders with SONAR scores of '7' was 20%, offenders with scores of '8' would be expected to recidivate at 28.4% (20% x 1.42 = 28.4%).

Table 1

Comparison of the recidivists and non-recidivists on static, historical variables

Measure	Recidivists	Non-recidivists	Sig
Sample size	208	201	
Age at exposure to risk	36.3 (11.2)	39.1 (11.6)	< .05
Ever married (%)	59.2	62.8	ns
Minority race (%)	14.0	11.5	ns
Predominant victim type (n)			
adult women (rapists)	71	66	
boys	61	61	
girls	76	74	
Diverse victim types (%)	53.8	33.3	< .001
Number of paraphilias (voyeurism, exhibitionism, fetishes, etc.)	1.5 (1.5)	1.0 (1.1)	< .001
Prior sentencing occasions			
for sex offences	1.3 (1.8)	1.1 (1.4)	ns
for any offences	5.3 (5.3)	4.1 (5.8)	< .05
IQ	94.4 (14.6)	100.1 (14.5)	< .001
PCL-R Psychopathy			
mean (SD)	23.4 (6.8)	16.7 (8.7)	< .001
% > 29	20.5	8.0	
	10.9 (8.6)	4.3 (9.0)	< .001
VRAG			
sample size	146	121	
RRASOR	2.6 (1.3)	2.3 (1.3)	ns
Static-99	4.0 (1.8)	3.4 (1.9)	< .01

Note. Standard deviations in parentheses

Table 2

Comparison of the recidivists and non-recidivists on SONAR items.

Measure	Recidivists	Non-recidivists	r
SONAR total score	8.0 (2.4)	5.4 (3.1)	.43***
Stable total	7.6 (1.9)	5.7 (2.5)	.40***
Intimacy deficits	1.7 (0.6)	1.5 (0.7)	.10*
Negative social influences	1.2 (0.8)	0.7 (0.8)	.30***
Attitudes	1.7 (0.7)	1.2 (0.9)	.31***
Sexual self-regulation	1.7 (0.5)	1.3 (0.7)	.31***
General self-regulation	1.7 (0.5)	1.2 (0.6)	.41***
Acute total	.39 (1.4)	-.38 (1.5)	.26***
Substance abuse	.06 (.43)	-.11 (.48)	.19***
Negative mood	.05 (.69)	-.09 (.81)	.10*
Anger/hostility	.10 (.45)	-.10 (.52)	.20***
Victim access	.18 (.55)	-.08 (.54)	.23***

When the control variables of age, IQ, Static-99 and VRAG were considered in the subsample for whom complete information was available ($n = 228$), the regression coefficient for SONAR was .32 ($sd = .061$, Wald = 27.19, $p < .001$). This can be interpreted to mean that even after controlling for some well-established static risk indicators, each increase in SONAR scores corresponds to an expected recidivism rate increase of 38% ($e^{(.32)} = 1.38$; 95% confidence interval of 1.22 to 1.55). The only other variables that remained significant in the multivariate prediction were the VRAG ($B = .055$; Wald = 6.49, $p < .05$) and IQ ($B = -.027$, Wald = 5.22, $p < .05$).

Figure 1 illustrates the combined ability of the VRAG and SONAR to distinguish between the recidivists and non-recidivists. For the offenders with low VRAG scores (-1 or less) and below average SONAR scores (less than 7), only 14% were recidivists (5 of 35). For offenders with low VRAG scores but above average SONAR scores, 57% (12 of 21) were recidivists. Similarly, the proportion of recidivists among the offenders with high VRAG scores (14 +) depended on whether their SONAR scores were below average (43%, 9 of 21) or above average (86%, 47 of 55).

Table 3

Correlation of SONAR items with age, IQ, and recidivism risk.

	Age at release	IQ	Static-99	VRAG
Sample size	409	316	409	267
SONAR Total	-.15**	-.15*	.14**	.39***
Stable Total	-.12*	-.13*	.16**	.42***
Intimacy deficits	-.05	-.14*	.07	.13*
Negative social influences	-.14**	-.16**	.04	.33***
Attitudes	-.08	-.05	.15**	.36***
Sexual self-regulation	-.03	-.02	.13**	.30***
General self-regulation	-.10*	-.09	.17**	.40***
Acute Total	-.10*	-.11	.05	.14*
Substance abuse	-.11*	-.07	.09	.07
Negative mood	-.03	-.08	-.02	.03
Anger/hostility	-.09	-.10	.01	.05
Victim access	-.06	-.02	.07	.23***

* $p < .05$; ** $p < .01$; *** $p < .001$

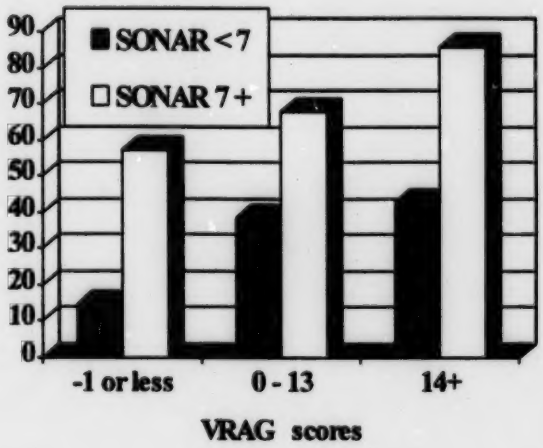
Discussion

The aim of the present study was to present a risk scale that could be used to evaluate change in risk among sexual offenders. The scale included both stable factors (intimacy deficits, social influences, attitudes, sexual self-regulation, general self-regulation) and acute factors (substance abuse, mood, anger, victim access). The properties of the scale were examined using data previously collected by Hanson and Harris (1998, in press). Overall, the scale showed adequate internal consistency and moderate ability to differentiate between recidivists and non-recidivists ($r = .43$; ROC area of .74). All of the SONAR items differentiated the groups, with the strongest effects for problems with general self-regulation.

SONAR continued to distinguish between the groups after controlling for well-established risk indicators, such as age, IQ, and scores on Static-99 (Hanson & Thornton, 1999) and the Violence Risk Appraisal Guide (VRAG; Quinsey et al. 1998).

Figure 1

Proportion of recidivists for various combinations of VRAG and SONAR scores.



The relatively strong effect for general self-regulation deficits is consistent with Quinsey, Coleman, Jones, and Altrows' (1997) finding that "dynamic antisociality" predicted reoffending among mentally disordered offenders supervised in the community. For all types of offenders, low self-control may play a central role in violation of conditional release. In fact, violation of conditional release is commonly included on measures of recidivism risk, such as the LSI-R (Andrews & Bonta, 1995) and the PCL-R (Hare, 1991). The relative importance of general self-regulation deficits in the current study may also be attributable to the ease with which these behaviours were observed by the community supervision officers. The officers may know little about the offenders' intimate relationships, but the officers had considerable opportunity to observe the offenders' behaviour in supervision.

Although SONAR's predictive accuracy was respectable, the results need to be interpreted cautiously. The extent to which the results will generalise is unknown since the same data set was used to develop and test the items. A more serious qualification, however, is that most of the information was drawn from interviews with community supervision officers who were fully aware of which offenders had recidivated or not. Consequently, the findings were vulnerable to retrospective recall biases. Minor events may acquire new significance after the reoffense is known. It is unlikely, however, that the results can completely be attributed to recall biases as the major risk factors (e.g., anger, sexual preoccupations) were also recorded in the case notes written prior to the recidivism event being known (see Hanson & Harris, in press). The available case notes lacked sufficient detail to score SONAR items, so reliance on interview data was necessary.

All the SONAR items were intended to be dynamic, but it is possible that they are proxies for enduring propensities. The SONAR was substantially correlated with static measures of risk, such as the VRAG, and the stable items in the SONAR carried most of the predictive accuracy. Nevertheless, reported changes in the acute risk factors signalled changes in recidivism risk even after controlling for the strongest static and stable risk factors available in the data set (see Hanson & Harris, 1998). The extent to which changes in SONAR scores indicate changes in recidivism risk will only be known given repeated assessments in truly prospective studies.

The results suggest that dynamic factors are important in risk assessment, but the current study does not support any direct translation of SONAR scores into expected recidivism rates. The observed proportion of recidivists in each risk category obviously does not correspond to recidivism rates since the study used an artificial base rate of 50%. In most applied settings, the sex offence recidivism rate would be expected to be considerably lower - approximately 5% per year (see Hanson & Thornton, 1999). Even the highest annual rates rarely exceed 15%-20% (high risk offenders in the first year after release).

Statistically minded readers may be tempted to adjust the results of the current study to recidivism base rates appropriate for their specific assessment context. Indeed, the information provided is sufficient to construct logistic regression equations that estimate recidivism probabilities for any combination of SONAR, IQ, VRAG and recidivism base rate. We do not believe, however, that the design of the study was strong enough to support such detailed predictions. The design was retrospective and the findings from truly prospective studies may not be the same.

A related question is the extent to which SONAR variables should be used to adjust the actuarial predictions provided by other actuarial instruments, such as Static-99 or the VRAG. Some authors, such as Quinsey et al. (1998), have argued against adjusting actuarial scales on the grounds that clinical opinion is so poor that adjustments only dilute the valid predictions provided by the actuarial scale. The accuracy of actuarial scales, however, depends on the extent to which they address all the relevant risk factors. The results of the current study

suggest that the predictions provided by many of the common risk scales, such as the RRASOR, Static-99, and the VRAG, can be improved by considering a range of dynamic risk factors related to behaviour while on community supervision. The best method of incorporating this information is unknown, but some adjustment seems justified when the offenders' dynamic needs are substantially higher (or lower) than would be expected from their scores on established actuarial measures.

Despite the study's limitations, the risk factors included in the SONAR are sufficiently consistent with previous research to be considered plausible risk indicators in applied contexts. It is hoped that such dynamic factors will be considered by evaluators in their risk assessments, and by treatment providers as potential treatment targets. By systematically addressing the problems suggested by the SONAR, future research will be able to determine the extent to which these dynamic factors are important in the risk management of sexual offenders.

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Appendix I

SONAR scoring criteria

Stable items		Score
Intimacy deficits	0 – current lover, no troubles 1 – current lover, troubles 2 – no current lover	
Social influences	0 – positive social balance of 2+ 1 – balance of 0 or +1 2 – balance less than zero	
Attitudes	0 = no agreement with any 1 = agrees with some 2 = agrees with many	
Sexual Self-Regulation	0 = no entitlement or preoccupations 1 = some entitlement or some sexual preoccupations 2 = strong entitlement or 3+ sexual preoccupations	
General Self-regulation	0 = no problem 1 = some problem 2 = serious problem	
Acute risk factors		
Substance abuse	-1 = better 0 = same 1 = worse	
Negative mood	-1 = better 0 = same 1 = worse	
Anger/hostility	-1 = better 0 = same 1 = worse	
Opportunities for Victim access	-1 = fewer 0 = same 1 = more	
Total		

Unless otherwise specified, the time period addressed by the stable risk factors is the preceding 12 months.

Intimacy Deficits

If the offender has no current lover, then he receives a score of "2". If the offender is living with a current lover, and there are no obvious troubles, then he receives a score of "0". If he is living with a current lover, but the relationship is conflicted or problematic, then he receives a score of "1". Potential problems could include affairs/infidelity, sexual problems, distrust, jealousy, general conflicts, and long-term separations (e.g., prison). The degree of troubles should be sufficient to be of concern to the man or his partner. A score of "1" would also be given to stable dating relationships that do not involve living together.

Social Influences

Name all the people in the offender's life who are not paid to be with him. For each one, is the influence positive, negative or neutral?

The number of positive influences minus the number of negative influences equals the social balance. Recode social balance: (2+ = 0) (0, 1 = 1) (less than 0 = 2).

Attitudes

Would the offender agree with the following statements?

Rape Attitudes:

Score as follows: 0 = no; 1 = maybe, somewhat; 2 = yes.

- Many women would secretly like to be raped
- When women go around wearing short skirts or tight tops they are asking for trouble
- A lot of times when women say "no" they are just playing hard to get and really mean "yes"
- That women are playing with him sexually
- That some rape victims deserve what they get

RECODE Rape: (0 = 0) (1, 2, 3, 4 = 1) (5 - 10 = 2)

Child Molesting Attitudes:

Score as follows: 0 = no; 1 = maybe, somewhat; 2 = yes.

- Some children are mature enough to enjoy sex with adults
- Some children like to sexually tease him
- A child who does not resist sexual touching really feels OK about being touched
- Some children are so willing to have sex that it is difficult to stay away from them

RECODE Child Molest: (0 = 0) (1, 2, 3 = 1) (4 - 8 = 2).

RECODE Total: 0 = no agreement with any; if Rape or Child Molest = 1, then Total = 1; if Rape or Child Molest = 2, then Total = 2.

Emotional/Sexual Self-Regulation

This need area concerns poorly controlled expression of sexual impulses and the tendency to use sexuality as a method of coping with negative emotions. The tendency to use sexuality as a coping mechanism was not directly measured in Hanson and Harris (1998). Instead, this dimension included indirect measures of sexual deviancy, such as sexual entitlement and sexual preoccupations.

Would the offender agree with the following statements (Sexual Entitlement)?
Score as follows: 0 = no; 1 = maybe, somewhat; 2 = yes.

- Everyone is entitled to sex
- Men need sex more than women do
- He has a higher sex drive than most people
- Once they get you wound-up sexually, you just can't stop

RECODE Sexual Entitlement: 0 = 0, 1 - 3 = 1, 4+ = 2.

Has the offender engaged in any of the following (Sexual Preoccupations)?
Scores as follows: 0 = no, 1 = maybe, 2 = yes.

- Pornography use
- Strip bars/massage parlours/prostitutes
- Lusty talk
- Excessive masturbation
- Deviant sexual fantasies/urges
- Preoccupation with sex crimes
- Preoccupation with sex/porno/hookers

RECODE Sexual Pre-occupations: 0 = 0, 1 - 4 = 1, 5+ = 2.

RECODE TOTAL Sexual Self-Regulation: 0 = no entitlement or preoccupations; 1 = Entitlement or Sexual Preoccupations of 1; 2 = Entitlement or Sexual Preoccupations of 2.

General Self-Regulation

This need area concerns the offender's ability to self-monitor and conform to the demands of community supervision. Offenders with generally criminal lifestyles would be expected to have problems in this area.

Has the offended been?
Score as follows: 0 = no, 1 = maybe, 2 = yes, except reversed items that are scored 0 = yes, 1 = maybe, 2 = no.

- Testing known risk factors
- Keeping secrets
- Invested in treatment (Reversed)
- Trying to "play the system"
- Trying to be "buddy-buddy with you"
- Breaking conditions of community supervision
- Failing to attend commitments other than community supervision
- Willing to make sacrifices to avoid high risk situations (Reversed)

RECODE (0 = 0) (1 - 7 = 1) (8 - 16 = 2).

Acute Risk Factors

For each of the following four problem areas, consider whether the offender's behaviour has improved (-1), deteriorated (+1), or remained the same (0) during the past month (or since the last assessment).

A) Substance abuse problems (alcohol and drugs).
Look for interference in normal daily activities and/or health problems.

B) Negative mood

- depression/discourage/hopeless
- anxiety/excessive worry/stress
- frustration
- loneliness
- suicidal thoughts

C) Anger/hostility

- flying off the handle/volatility/anger
- anger towards women
- any aggressive/rude/threatening to others

D) Victim access/grooming

- access to victims (general)
- cruising/creating opportunities to reoffend
- grooming of victims
- bicycle/4X4/motorcycle/flashy car (Does the offender have a vehicle that would be expected to attract the attention of his preferred victim type?)
- computer/surf the net
- hobbies: camera/fishing/kites/boats (Does the offender engage in a hobby that would be expected to facilitate contact with his preferred victim type?)

Sum the four items (A, B, C, D) and then add (or subtract) from the stable dynamic items.

Translating SONAR scores into risk categories

Category	SONAR Score
Low	-4 to 3
Low moderate	4, 5
Moderate	6, 7
High moderate	8, 9
High	10 - 14